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10/777,022

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Gregory B. Altshuler

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EXAMINER

JOHNSON III, HENRY M

ART UNIT

PAPER NUMBER

3739

DATE MAILED: 05/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |  |   |  |
|------------------------------|--|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/777,022     | <b>Applicant(s)</b><br>ALTSHULER ET AL. |  |
|                              | <b>Examiner</b><br>Henry M. Johnson, III | <b>Art Unit</b><br>3739                 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18, 21-23, 25-27, 29 and 31-46 is/are rejected.
- 7) ☐ Claim(s) 17, 19, 20, 24, 28 and 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>020306</u> . | 6) <input type="checkbox"/> Other: _____  |

### ***Response to Arguments***

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

The provisional obvious double patenting rejections have been tentatively withdrawn. As the claims are modified during the prosecution, a better evaluation can be accomplished.

### ***Claim Objections***

Claim 14 is objected to because of the following informalities: comprise should be plural. Appropriate correction is required.

Claim 39 is objected to because of the following informalities: the word "the" is required before apparatus. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S.

Patent Application Publication US 2001/0024777 to Azar et al. Azar et al. discloses a device for oral hygiene that directs light toward the brushing head, the light may be provided by a gas

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discharge lamp or flash lamp (paragraph 0041). Such lamps inherently yield a broad spectrum of light which is interpreted as multiple spectrums. At least one filter is provided to select the desired wavelength (paragraph 0027).

Claims 1, 11-14, 16, 18 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,094,767 to Iimura. Iimura teaches a cleaning apparatus including a light source and light transmitting bristles (abstract), the device may be in a toothbrush configuration for dental hygiene (Col. 11, lines 20-30). The light source may emit blue light and UV light (Col. 5, lines 24-26). Diffusing particles may be used to diffuse the light (Col. 6, lines 40-45). To provide light to a target, the bristles must be optically coupled to the radiation source.

Regarding claims 16 and 18, the bristles have a shape and deliver radiation. Without a specified shape the claims are anticipated.

Claims 1, 27 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,331,111 to Cao. Cao teaches a device for curing light activated materials as commonly found in the dental art (Col. 2, line 9), thereby establishing a size capable of insertion into a mouth. A light source in the handle is disclosed that may produce multiple wavelengths (Col. 5, lines 58-65). The light source is provided with a heat sink within the handle, a heat sink inherently having a thermally conductive element and being located in the handle the handle would inherently conduct some of the heat (Col. 13, lines 1-25).

Claims 1-10, 26, 31-42, 45 and 46 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 98/06456 to Chen et al. Chen et al. teach an apparatus employing light therapy to treat oral conditions (abstract) including a mouthpiece that surrounds the teeth and gums (Fig. 2) that may be comfortably left inside a patient's mouth for extended times (page 2, lines 32-35) and is made from an elastomeric material such as silicone (page 5, line 8). This is interpreted as a compliant

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mouthpiece. The radiation source is disclosed as an LED, laser diode, gas discharge lamp or filament bulb (page 3, lines 30-32). The source may be mounted on the mouthpiece or located external to the mouthpiece with the radiation delivered via fiber optics (optical element). The means for delivery may include diffusing material (page 3, line 25). The optical fibers deliver the radiation in different directions (page 6, lines 13-15). Portions of the mouthpiece may be highly reflective (page 7, line 21). The sources mounted around the mouthpiece clearly radiate in different directions. Chen et al. incorporates by reference U.S. Patent 5,445,608 that teaches the use of either an internal or external array of light sources and allows use of LEDs or laser diodes operating at two or more wavelengths, and the ability to selectively activate the sources operating at a given wavelength or waveband as desired, so that the light at the different wavelengths or wavebands is provided to the treatment site either sequentially or simultaneously from the light sources (Col. 8, lines 37-45). The sources may be controlled by monitoring the temperature rise of the tissue (diagnostic sensor) (Col. 8, line 8). The current regulation will control the power of the light source. The '608 reference further teaches that waste heat produced by the array of LEDs or LDs disposed on the implantable probe can be employed to augment the PDT by increasing the temperature of the tissue at the treatment site (abstract) and the use of heat sinks (Fig. 1) for heat dissipation. Ports are disclosed in the '408 patent for conveying a photoreactive agent from photoreactive agent reservoir to the target site.

Regarding claims 5-8, the disclosure of a gas discharge source inherently produces a polychromatic radiation. Chen et al. teach specific wavelengths for treatment and therefore it is inherent that filters would be employed to obtain the desired wavelengths when using a polychromatic source as one skilled in the art would surely remove wavelengths considered harmful as well as selecting those appropriate for the chosen sensitizer. It is proper to take into consideration not only the teachings of the prior art, but also the level of ordinary skill in the art.

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In re Luck, 476 F.2d 650, 177 USPQ 523 (CCPA 1973). Specifically, those of ordinary skill in the art are presumed to have some knowledge of the art apart from what is expressly disclosed in the references. In re Jacoby, 309 F.2d 513, 135 USPQ 317 (CCPA 1962).

Claims 1 and 43-44 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,443,978 to Zharov. Zharov teaches a photomatrix device for irradiation of tissue using multiple LEDs that may be of different wavelengths (Col. 12, lines 1-5). A configuration of the photomatrix is disclosed for use in a mouth (Col. 12, line 41). The device may include an ultrasonic module (Claim 61), the ultrasonic also interpreted as a vibrating element.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,094,767 to Iimura as applied to claim 11 above and further in view of U.S. Patent 6,239,442 to Iimura. Iimura '767 is discussed above, but does not teach reflective coating on the bristles.

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limura '442 teaches the same invention as the previous limura patent and includes a light reflecting means on the bristles. It would have been obvious to one skilled in the art to coat the bristles as taught by limura '442. of the invention of limura '767 to further direct the radiation to the target via the bristles.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,094,767 to limura as applied to claim 11 above and further in view of U.S. Patent 6,862,771 to Muller. limura is discussed above, but does not teach a detachable head. Muller teaches a toothbrush with a head with bristles and a radiation source in a handle. The location in the handle is disclosed as convenient if the toothbrush is an electrical toothbrush, i.e. having electrical drive means to move the cleaning bristles in a tooth cleaning operation. The electric drive is interpreted as a vibrating mechanism. The radiation is directed in a direction parallel to the bristles either between the bristles or through the optically transparent bristles, thus teaching a plurality of emitters (Fig. 6). A reflecting surface directs the radiation to the bristles (Fig. 6, # 17). Along with the radiation source in the handle, a detector is disclosed for sensing reflected radiation. This detector is interpreted as a diagnostic sensor (Col. 2, lines 38-65). The head is disclosed as being detachable (Col. 8, line 55). It would have been obvious to one skilled in the art to use the detachable head as taught by Muller in the invention of limura as such interchangeable heads are common and well known for oral hygiene devices.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,094,767 to limura as applied to claim 22 above and further in view of U.S. Patent 6,273,884 to Altshuler et al. limura is discussed above, but does not disclose inhibiting radiation when not in contact with tissue. Altshuler et al. teach a tissue treatment apparatus and the concept of total internal reflection. The optical delivery channel is treated to normally have total internal reflection so that light or other radiation entering the channel is reflected internally, however,

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when lens (output face) is in contact with a patient's skin, the total internal reflection at the skin-contacting surface is broken due to the change of index of refraction at this surface so that light energy is emitted into the patient's skin (Col. 16, lines 25-33). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the technique of modifying the index of refraction of the light channel as taught by Altshuler et al. in the invention of limura to limit the radiation to the oral cavity as a safety consideration as suggested by Altshuler et al.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,094,767 to limura as applied to claim 1 above, and further in view of U.S. Patent 5,133,102 to Sakuma. limura is discussed above, but does not teach the use of a contact sensor. Sakuma discloses an electronic toothbrush with a handle, head and bristles and a circuit that energizes a radiation device when the bristles contact the teeth, thus sensing contact and completing the circuit via the body of the user. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the contact sensor as taught by Sakuma in the device of limura to activate the device when in the preferred use position, in contact with the oral tissue as suggested by Sakuma.

### ***Allowable Subject Matter***

Claims 17, 19, 20, 24, 28 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

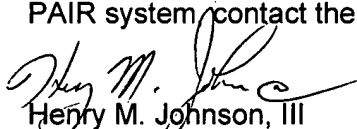


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry M. Johnson, III whose telephone number is (571) 272-4768. The examiner can normally be reached on Monday through Friday from 6:00 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda C. Dvorak can be reached on (571) 272-4764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Henry M. Johnson, III  
Primary Examiner  
Art Unit 3739